

Appl. No. 09/837,020
Andt. Dated July 26, 2006
Reply to Office Action of April 26, 2006

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The Office Action of April 26, 2006 has been thoroughly studied. Accordingly, the changes presented herein for the application, considered together with the following remarks, are believed to be sufficient to place the application into condition.

By the present amendment claim 16 has been changed to include sodium alginate.

Support for this change can be found in the third line from the bottom of page 3.

Also by the present amendment claim 14 has been canceled.

Finally, the typographical error noted by the Examiner in claim 1 has been corrected.

Entry of the changes to the claims is respectfully requested.

Claims 1, 3, 7 and 13, 15 and 16 are pending in this application.

Claims 1, 3, 7 and 13-16 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 3,950,891 to Hinkes in view of U.S. Patent No. 5,666,762 to Carlson et al.

For the reasons set forth below, it is submitted that each of the pending claims is allowable over the prior art of record and therefore, the outstanding prior art rejection of the claims should properly be withdrawn.

Favorable reconsideration by the Examiner is earnestly solicited.

The Examiner has relied upon Hinkes as teaching:

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...a method encapsulating at least one plant seed of a light germinator (Hinkes Col. 1 line 60-65), the at least one plant seed having a size of 1 mm or less (Hinkes Col. 1 line 16-20); an encapsulating the seed (Hinkes Col. 1 line 49 and Col. 2 line 18).

The Examiner concedes that:

Hinkes is silent on explicitly teaching that the coating is an aqueous gel capsule having a moisture content of at least 90% by weight and the steps of refrigerating the at least one plant seed under or of a humidifying conditions or in an airtight container so that moisture is not lost from the aqueous gel capsule and under the condition that the at least one plant seed does not germinate; and sowing the at least one plant seed.

Accordingly the Examiner has relied upon Carlson et al. as teaching:

... that it is general knowledge in the art of plant husbandry to encapsulate seeds with an aqueous gel coat (Carlson Col. 5 line 4-7) for long-term storage (Carlson abstract line 7) and to store the seeds under refrigerated conditions in an airtight container (Carlson Col. 22 line 61-67) so that the plant does not germinate and then to plant the seed.

In combining the teachings of Hinkes and Carlson et al. the Examiner takes the position that:

It would have been obvious to one of ordinary skill in the art to modify the teachings of Hinkes with the teachings of Carlson at the time of the invention since the modification is merely the selection of an alternate seed coat selected for its known advantage of improving germination as taught by Carlson (Carlson Col. 1 line 65-66).

The Examiner further states:

Hinkes teaches there is sufficient motivation in the art to modify a celery seed with a seed coat to improve mechanized planting (Hinkes Col. 1 line 50-53). Carlson is cited merely to teach that seeds coated with aqueous gel coats are old and notoriously well-known in the art along with the commonly practiced procedures of long-term storage of coated seeds.

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Hinkes is directed to an improved coating composition for seeds that "permits utilization of mechanized equipment for many of the operations formerly carried out manually."

The coating composition developed by Hinkes comprises at least 50% by weight of an amorphous silica, the remainder including at least about 5% by weight montmorillonite and at least about 10% by weight attapulgite.

In particular, the coating compositions are good for a light germinator such as celery seed since the compositions do not shield light too much when the planted seed must germinate after sowing.

Carlson et al. is directed to the long-term storage of "manufactured seeds." For this purpose, Carlson et al. provides "manufactured seeds" which comprise totipotent plant "tissue" 12 and a protective gel capsule 14. (See Figs. 1 and 2).

Carlson et al. teach "a unit of totipotent plant tissue, that can be sown like natural seed and produce viable germinants."

The "manufactured seed coat" is stated to protect the totipotent plant tissue from mechanical damage, desiccation, and attack by pathogens, pests, etc.

Carlson et al. teach that "preferred embodiments of manufactured seeds according to the present invention, the unit of totipotent plant tissue preferably is developed sufficiently to have a shoot end and a radicle end."

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Carlson et al. teach sparging the manufactured seeds with a respiration-limiting gas such as carbon dioxide or nitrogen, and then sealing the manufactured seeds in a closed container that is filled with the respiration-limiting gas for long term storage at 1°C.

As can be readily seen, Hinkes and Carlson et al. are directed to quite different technologies and have unrelated goals and objectives.

Nevertheless, the Examiner has taken the position that:

It would have been obvious.... to modify the teachings of Hinkes with the teachings of Carlson at the time of the invention since the modification is merely the selection of an alternate seed coat selected for its known advantage of improving germination as taught by Carlson

The Examiner's position overlooks that Hinkes requires a specific seed coating composition that comprises:

...admixed materials have different swelling rates, so that when the dried coating is exposed to the moisture of the seed bed, there is a gradual swelling of the coating over a period of time, and this swelling continues after the hydration of the fastest swelling ingredient. The component having the slower rate of hydration continues to act as a binder during the hydration and swelling of the faster swelling component. This interplay of the forces generated causes one component to expand whereas the other component restrains the coating to insure that the coating will open or expand much like the opening of petals of a flower and then will fall away from the seed rather than merely swelling and staying in place. In this manner, the underlying seed is exposed to moisture, air, and light shortly after being planted. This contrasts with conventional coatings which remain on the seed after planting to shield the seed from light and air for a longer time. (column 2, line 57 through column 3, line 7)

Moreover, Hinkes requires a coating composition which will allow light to germinate light germinating plant seeds.

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Carlson et al., on the other hand teaches "manufactured seeds" that comprise totipotent plant tissue that are encapsulated in a hydrated gel capsule.

There is absolutely no basis for taking the position that it would be obvious to merely substitute the "alternate seed coat" of Carlson et al. for that of Hinkes.

In this regard, the Examiner has not established that the coating compositions of Hinkes and Carlson et al. are functional equivalents.

Certainly the hydrated gel of Carlson et al. will not function, i.e. open like a flower, in the same manner as the coating composition of Hinkes that includes components that swell at different rates.

Rather, the art teaches that they are not at all functional equivalents.

Moreover, Carlson et al. encapsulates "totipotent plant tissue" rather than plant seeds.

In contrast to both Hinkes and Carlson et al., the present invention is directed at preventing defective germination or growth of a plant.

Since neither Hinkes nor Carlson et al. teach or show any concern for preventing defective germination or growth of a plant, it is not believed that the teachings of these references, even if properly combined, would render applicants' claimed invention obvious.

Based upon the above distinctions between the prior art previously relied upon by the Examiner and the present invention, and the overall teachings of prior art, properly considered as a whole, it is respectfully submitted that the Examiner cannot rely upon the prior art as required under 35 U.S.C. §103 to establish a *prima facie* case of obviousness of applicants' claimed invention.

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It is, therefore, submitted that any reliance upon prior art would be improper inasmuch as the prior art does not remotely anticipate, teach, suggest or render obvious the present invention.

Entry of the present Preliminary Amendment and an early examination of the application are respectfully requested.

The prior art made of record, but not relied upon, on page 5 of the Office Action has been noted. This prior art is not deemed to be particularly pertinent to applicants' claimed invention.

If upon consideration of the above, the Examiner should feel that there remain outstanding issues in the present application that could be resolved; the Examiner is invited to contact applicants' patent counsel at the telephone number given below to discuss such issues.

To the extent necessary, a petition for an extension of time under 37 CFR §1.136 is hereby made. Please charge the fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 12-2136 and please credit any excess fees to such deposit account.

Respectfully submitted,

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